MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE COMMUNICATION

TO: Steven E. Chester, Director

THROUGH: Jim Sygo, Deputy Director

FROM: George W. Bruchmann, Chief, Waste and Hazardous Materials Division

DATE: May 8, 2008

SUBJECT: Petition for Site-Specific Treatability Variance from Land Disposal Restrictions; The Dow Chemical Company, Midland, Michigan (Dow); MID 000 724 724

The Waste and Hazardous Materials Division (WHMD) recommends approval of the Petition for a Site-Specific Treatability Variance (Petition) from Land Disposal Restrictions (LDRs) that was submitted by Dow for their Midland Plant. The Petition was submitted on October 1, 2007, and revised on January 22, 2008.

The Petition, if approved, would allow certain soils impacted by hazardous waste to be directly land disposed in the Dow Salzburg Landfill rather than being incinerated and/or treated first.

There is no delegation of this authority from the Director. The final decision must be made by the Director. We are asking for your approval to proceed with the attached public notice of the draft approval of the Petition.

INTRODUCTION

Activities at Dow's 1,900-acre Midland Plant include manufacturing, research and development, and various administrative support functions related to the manufacture and sale of plastics, agricultural chemicals, and organic and inorganic chemicals. In addition, Dow manages much of the waste generated at the Midland Plant in on-site and nearby facilities that are permitted by the U.S. Environmental Protection Agency (U.S. EPA) and the Michigan Department of Environmental Quality (MDEQ). As a result of historic waste management activities at the facility, on-site soils and a portion of the groundwater beneath the site has become contaminated. Since the Tittabawassee River flows through the Dow Midland Plant, this contaminated groundwater could potentially reach the Tittabawassee River. To prevent this contaminated groundwater from entering the river, Dow has installed and operates approximately 13,600 feet of groundwater collection tile along the riverbanks. This groundwater collection tile system is referred to as the Revetment Groundwater Interceptor System (RGIS). Groundwater that is collected by the RGIS is sent to Dow's wastewater treatment plant for treatment prior to discharge to the Tittabawassee River.

The soils in the vicinity of the RGIS have become contaminated over time by historical land disposal activities and due to the movement of contaminated groundwater (F039 multi-source leachate) through the soil on its way to the interceptor trench. Soils impacted by F039 hazardous waste must be managed as hazardous waste until the soils have been shown to not contain contaminants. The contaminants within these soils may include dioxins and furans, as well as metals and other organic constituents. The primary source of the dioxin and furan contaminants in Dow Midland Plant soils is thought to be from past waste disposal areas associated with 2,4,5-trichlorophenol (2,4,5-T) and

pentachlorophenol herbicide and related manufacturing/formulation plants that operated between the 1930s and 1970s. The dioxins and furans were inadvertent byproducts or impurities formed during the manufacture of the chlorinated phenolic products. These dioxin and furan contaminated soils impacted by hazardous waste are the subject of the Petition submitted by Dow to the MDEQ. The variance does not apply to soils that are not hazardous waste. River sediments are generally classified as solid waste rather than hazardous waste and, therefore, would not be affected by this variance.

Dow was previously granted a variance for RGIS soils by the U.S. EPA on June 10, 1997. The variance expired on June 10, 2007. Since the time of the original approval, the LDRs regulations have been amended and the MDEQ has received authorization to review and approve site-specific LDR variance petitions.

This proposed variance would expand the coverage of the previous U.S. EPA variance to include all hazardous waste impacted soils generated through corrective action work, as well as update the previous U.S. EPA approval to include amendments to the LDRs enacted since 1997. The previous U.S. EPA approval applied only to soils generated through corrective action activities associated with RGIS maintenance.

This proposed variance also incorporates the ability to utilize toxicity equivalence (TEQ) as an alternative to total concentrations of dioxin and furan groups as specified in the LDRs. The benefit of this change is to use a measure of total toxicity to determine which soils can be landfilled and which soils must be incinerated.

AUTHORITIES AND REFERENCES

Under the LDR regulations, certain hazardous wastes are restricted from land disposal unless they meet a specified treatment standard designed to minimize the toxicity of the hazardous waste. Pursuant to Title 40 of the Code of Federal Regulations (CFR), Part 268, hazardous wastes that do not comply with the levels or methods of treatment that substantially diminish the toxicity of a waste or substantially reduce the likelihood that hazardous constituents will migrate from a waste are prohibited from being placed in land disposal units.

Pursuant to 40 CFR, Section 268.44(h)-(j), a generator of a waste may apply to the U.S. EPA Administrator for a site-specific variance from a treatment standard under the LDRs. The site-specific variance may be approved if:

- It is not physically possible to treat the waste to the level specified in the treatment standard or by the method specified as the treatment standard.

- It is inappropriate to require the waste to be treated to the level specified in the treatment standard or by the method specified as the treatment standard, even though such treatment is technically possible.

- For contaminated soil only, treatment to the level or by the method specified in the soil treatment standards would result in concentrations of hazardous constituents that are below the concentrations necessary to minimize short- and long-term threats to human health and/or the environment.

- For contaminated soil only, treatment to the level or by the method specified in the soil treatment standards would result in concentrations of hazardous constituents that are below natural background concentrations.

DESCRIPTION OF PETITIONER'S INTEREST IN THE PROPOSED ACTION

Soil sampling that has been performed to date indicates that some of the soils that will be excavated during the replacement of the RGIS contain total dioxin and furan congener group concentrations above the treatment standard of 1 part per billion (ppb). Under the LDRs, these soils would likely require treatment prior to land disposal, and treatment would likely be accomplished by incineration.

This would require the permitting and construction of a long-term storage facility for the soils prior to incineration, would significantly delay the process of replacing remaining portions of the RGIS that require upgrading, and could impact the timeliness of implementation of other corrective action activities. Dow believes that the disposal of the contaminated soils in its hazardous waste landfill will provide environmental protection at least equivalent to treating the soils by incineration. In addition, the cost of incinerating 100,000 cubic yards of contaminated soil is prohibitive. Thus, Dow is seeking this variance to expedite the replacement of portions of the RGIS that require upgrading, to avoid construction and operation of a storage facility for contaminated soils, to dispose of these and other contaminated soils in an environmentally protective manner, and to avoid the prohibitive costs associated with the incineration of 100,000 cubic yards of soil.

DESCRIPTION OF ALTERNATIVE PROPOSED IN THE PETITION

This variance will apply to plant-site soils subject to regulation as hazardous waste with dioxin or furan concentrations no greater than 50 times the universal treatment standards or 50 ppb TEQ. As these soils are already subject to a factor of 10 times the universal treatment standard as a soil, this approval provides an additional factor of 5 times the universal treatment standard for soil. Plant-site soils that are not hazardous waste and river sediments are not covered by this variance. River sediments are generally classified as solid waste rather than hazardous waste and, therefore, would not be affected by this variance.

Hazardous waste impacted soils meeting the alternative standard could be directly landfilled in Dow's Salzburg Landfill. The Salzburg Landfill is a hazardous waste landfill located nearby the Dow Midland Plant and is licensed by the U.S. EPA and the MDEQ under the federal Resource Conservation and Recovery Act of 1976 (RCRA) and Part 111, Hazardous Waste Management, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA).

Hazardous waste impacted soils that contain dioxins or furans in concentrations greater than 50 times the universal treatment standards, or 50 ppb TEQ, will be treated by incineration prior to disposal in the Salzburg Landfill or other treatment and disposal in accordance with the RCRA and Part 111 of the NREPA.

JUSTIFICATION FOR APPROVAL

The MDEQ proposes to approve the Petition for the following reasons:

- Expedite the replacement of the RGIS in order to maintain protection for the Tittabawassee River.

- Expedite the identification and removal of source areas on the plant site potentially contributing to contamination of groundwater.
- Foster redevelopment of the plant site.
- Provide additional environmental protection by allowing greater flexibility in the choice of construction methodologies and materials, resulting in a more durable and effective RGIS.
- Eliminate the need for long-term storage of contaminated soils at Dow.
- Eliminate the need to incinerate large quantities of contaminated soil.
- LDRs were designed for process wastes rather than contaminated soils.
- Disposal of contaminated soil at the Salzburg Landfill will be protective of human health and the environment.
- Soils containing concentrations of dioxins and furans greater than 50 ppb TEQ will be incinerated prior to land disposal.
- The U.S. EPA has previously approved a variance for similar material.
- The petition meets the requirements of 40 CFR, Section 268.44(h)-(j).

PUBLIC PARTICIPATION

Public notice and a reasonable opportunity for public comment must be provided before granting or denying a petition. The WHMD is proposing participation through the DEQ Calendar, direct mailing, and making copies of the documents available on the MDEQ Web site and at the following locations:

Michigan Department of Environmental Quality
Waste and Hazardous Materials Division
Constitution Hall, Atrium North
525 West Allegan Street
Lansing, Michigan 48933
Contact Person: Jack Schinderle at 517-373-8410

Michigan Department of Environmental Quality
Waste and Hazardous Materials Division
Saginaw Bay District Office
503 North Euclid Avenue, Suite 1
Bay City, Michigan 48706
Contact Person: Trisha Peters at 989-686-8025, Extension 8204

Written comments on the draft decision will be accepted during a 30-day comment period.

If you have any questions, please contact Jack Schinderle at 517-373-8410 or you may contact me.

Attachments

cc/att: Liane Shekter Smith, MDEQ
De Montgomery, MDEQ
Steve Buda, MDEQ
Terry Walkington/Trisha Peters, MDEQ
Cheryl Howe/Al Taylor/On-Site Corrective Action File, MDEQ
Jack Schinderle, MDEQ